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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,147	06/05/2001	Michael J. Siwinski	82686THC	6252

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EXAMINER	
JORGENSEN, LELAND R	

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/874,147	SIWINSKI, MICHAEL J.	
	Examiner	Art Unit	
	Leland R. Jorgensen	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1 - 4 and 6 - 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashimizu, JP 410091088 A (See Thomson-Derwent Translation JP10-91088A) in view of Gettemy et al., USPN 6,603,469 B1, Asprey, USPN 5,576,723, and Kubes et al., USPN 6,035,180.

Claims 1 and 6

Takashimizu teaches a color electroluminescent display, comprising a plurality of different colored light emitting elements. Takashimizu, p. 4, and figure 3. Takashimizu teaches that displaying a monochrome image using only one color saves power. Takashimizu, pp. 4, 8-9, 33- 35, and 37; and figures 2, 3, 8, and 13 – 16. For example, only displaying the green pixel reduces the power consumption by ½. Takashimizu, pp. 8-9 and 37. Displaying the only the red pixel reduces the power consumption by 1/3. Takashimizu, p. 33.

Takashimizu, however, does not specifically teach switching the display to monochrome to save power.

Gettemy teaches switching a multicolor display to monochrome to save power. Gettemy, col. 2, lines 10 – 36. Gettemy invites one to consider the different display types.

> Any of a number of display technologies can be used, e.g., LCD, FED, plasma, etc., for the flat panel display 105. In one embodiment, the display 105 is a flat panel multi-mode display capable of both monochrome and color display

> modes. that the display device may be a field emissive device or any other display suitable for creating graphic images.

Gettemy, col. 5, lines 50 – 55. See also Gettemy, col. 6, lines 56 – 63.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the power saving method as taught by Gettemy with the electroluminescent display and method as taught by Takashimizu to reduce battery power consumption in a portable electronic device. Gettemy invites such combination by teaching, "It would be desirable to provide an electronic device that offered a color display but also managed the device's battery life in an intelligent manner." Gettemy, col. 1, lines 60 – 63. See also Gettemy, col. 1, lines 15 – 55. Gettemy invites one in the art to consider the display taught by Takashimizu by teaching, "It is appreciated that any multi-mode display device can be used by the present invention where color display consumes more energy than the monochrome device." Gettemy, col. 9, lines 26 – 29.

Although inherent to the power saving method taught by Gettemy (see e.g. Gettemy col. 6, lines 25 – 67 and figure 50), neither Takashimizu nor Gettemy specifically teach a digital image processing circuit for converting at least a portion of a color digital image to be displayed on the display to a monochrome image.

Asprey teaches a digital image processing circuit for converting a color digital image to be displayed on the display to a monochrome image. Asprey, col. 1, lines 20 – 25; col. 3, lines 17 – 35, 51 – 54; and figure 1.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the digital image processing circuit as taught by Asprey to the electroluminescent

method and display as taught by Takashimizu and Gettemy to produce a clearer monochromatic image. Asprey invites such combination by teaching,

> Where software for a color monitor provides color backgrounds for highlighting and a different color of data on the highlighted backgrounds, problems arise when the signal for a color monitor is split and one of the color signals fed to the monochrome monitor or the color signal itself is applied to a monochrome monitor. Here, since the color signals are provided on R, G, and B terminals, and the monochrome monitor is only provided with a G terminal input for both the background and data, any red and blue data on the R and B terminals is not displayable on the monitor. Further, where there are mixtures of colors containing a green component in the color background, such as yellow or cyan, and data containing a green component of equal intensity as the green component of the background is superimposed on the background, the green component in the background colors masks the green component of the data. For example, yellow characters on a cyan background, when applied to a monochrome IBM standard monitor, produces an all-white display, with the characters being indistinguishable from the background.

Asprey, col. 2, lines 19 – 38.

Although Takashimizu teach an electroluminescent display, neither Takashimizu, Gettemy, nor Asprey teach an **organic** electroluminescent display.

Kubes specifically teaches a color organic electroluminescent display [display area 10]. Kubes, col. 2, lines 48 – 52; col. 7, line 66 – col. 8, line 41; and figure 1. Kubes teaches that organic electroluminescence have a plurality of different light emitting elements each having different light emitting efficiencies. Kubes teaches that one colored lighted emitting element, yellow/green, has the highest light emitting efficiency. Kubes, col. 9, lines 48 – 60; col. 10, lines 28 – 32; and figure 12.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the color organic electroluminescent elements as taught by Kubes with the color

electroluminescent display as taught by Takashimizu, Gettemy, and Asprey. Kubes invites such combination by teaching,

> By way of general summary, the basic principles of operation of the organic electroluminescent display incorporated into the present invention are somewhat related to those used in liquid crystal displays (LCDs). An organic electroluminescent layer such as a light emitting polymer layer or layers (LEPs) or Alq are sandwiched between two conductive layers comprising Indium Tin Oxide (ITO) (or other suitable material) and Aluminum (Al) (or other suitable material) that are etched, usually via a laser, or stereo lithography, into conductive elongate conductive strips comprising "wires." Each of the etched "wires" on these respective areas run perpendicular to one another. At the crossing point of the "wires" between the top ITO (or other suitable material) layer and the bottom Al (or other suitable material) layer, a pixel is formed. A particular pixel is lighted by voltage when the appropriate ITO (or other suitable material) "wire" and the corresponding "Al" (or other suitable material) are combined in a circuit. The current going through the crosspoint between the two wires excites the LEP or Alq layer and light is emitted. In current technology, organic electroluminescent materials, such as LEPs and Alq have been developed that exhibit the colors green, yellow, blue and red. The color green/yellow has proven to be the most efficient color so far. The light emitting organic electroluminescent material display operates at a relatively low voltage and a reasonable current and give light levels that are comparable to both light emitting diodes (LEDs) and liquid crystal displays (LCDs).

Kubes, col. 10, lines 9 – 36.

Although neither Takashimizu, Gettemy, Asprey, nor Kubes specifically teach using the light emitting element having the highest light emitting efficiency, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the element having the highest light emitting efficiency, specifically the organic EL green/yellow as taught by Kubes, to produce a power saving monochrome display having the greatest efficiency.

Claims 2 and 7

Gettemy teaches that the display is in a battery powered device, and further comprising the step of monitoring the power level of the battery, and converting to a power saving mode of

operation when the battery power reaches a predetermined level. Gettemy, col. 2, lines 16 – 19; col. 7, lines 27 – 47; col. 8, lines 27 - 56; and figure 9.

Claims 3 and 8

Gettemy teaches a battery saving mode switch [button 560a] connected to the control circuit for switching to a battery saving mode. Gettemy, col. 2, lines 64 – 67; col. 7, lines 27 – 47; col. 9, line 55 – col. 9, line 17; and figures 9 & 10.

Claims 4 and 9

Kubes teaches that the display has red, green, and blue light emitting elements and that the green light emitting elements have the highest light emitting efficiency. Kubes, col. 10, lines 28 – 32.

3. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashimizu in view of Gettemy et al., Asprey, and Kubes et al., as applied to claims 1 or 6 above, and further in view of Hill, Jr., USPN 5,790,096.

Claims 5 and 10

Neither Takashimizu, Gettemy, Asprey, nor Kubes teach that the digital image processing circuit converts a color digital image to a monochrome digital image by combining 5/16, 9/16, and 2/16 of the red, green and blue color signals, respectively.

Hill teaches that the digital image processing circuit converts a color digital image to a monochrome digital image by combining 5/16, 9/16, and 2/16 of the red, green and blue color signals, respectively. Hill, Jr., col. 7, lines 20 – 34; and table I.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the weighting factors as taught by Hill with the electroluminescent display as taught by Takashimizu, Gettemy, Asprey, and Kubes to implement the properly balanced monochrome image. Hill invites such combination by teaching, "In a further aspect of the invention, full color images may be reduced to a plural bit grey scale for display on a monochrome screen." Hill, col. 2, lines 58 – 60.

Response to Arguments

4. Applicant's arguments with respect to claims 1 - 10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland R. Jorgensen whose telephone number is 703-305-2650 or 571-272-7768 after February 2005. The examiner can normally be reached on Monday through Friday, 7:00 a.m. through 3:30 p.m..

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lrj

DENNIS-DOON CHOW
PRIMARY EXAMINER